6. Water Recycling

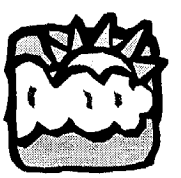
Water recycling offers significant potential to improve water supply reliability for California, one of the primary objectives of the CALFED Program. Water recycling is a safe, reliable, and locally controlled water supply. Tertiary treated, disinfected recycled water is permitted for all non-potable uses in California through Title 22 of the California Code of Regulations. With the majority of the state's population in coastal areas, the majority of resulting wastewater flows currently are discharged to the ocean and rendered unavailable for reuse. If these flows are recycled, they can represent a new and somewhat drought-proof source of supply for water users.

Currently, the total agricultural and urban water use in the state is about 42 MAF annually. Of this, the urban sector uses about 8.7 MAF, nearly 70% of which is used in the urban coastal areas of California (DWR 1997). In southern California, about 30% of this use goes directly to outdoor urban landscaping and does not generate a wastewater flow (MWD 1996). In hotter inland areas, this percentage can increase to more than 60% (DWR 1997). In coastal areas of the state, the remaining urban uses (indoor residential and CII) result in more than 2 MAF of wastewater being treated and discharged annually (BARWRP 1997). Recycling of any portion of this water constitutes a new water supply—a water supply that can be allocated to other beneficial uses.

By 2020, wastewater flows from coastal areas are expected to increase to over 3 MAF annually, even considering significant levels of future urban water conservation. This amount can provide substantial opportunities for water recycling and help achieve CALFED Program objectives for water supply reliability, water quality, and ecosystem restoration. Recycling creates a unique contribution to improved reliability by providing an additional source of water that is local rather than imported. Further, this source can be relatively resistant to drought, making it available when it is needed most. Perhaps most important, recycling often provides increased water for one beneficial use without reducing the water available for other beneficial uses. From a Bay-Delta perspective, recycling projects in export areas increase water supply without increasing Delta exports or reducing Delta outflow. Thus, water recycling projects can simultaneously help meet CALFED Program objectives for water supply reliability, water quality, and ecosystem restoration.

Potential benefits from water recycling include:

- Reduced demand for Delta exports
- Improved timing of diversions
- Increased carryover storage
- Reduced fish entrainment
- Reduced discharge of treated wastewater into useable surface water bodies
- Improved water quality
- Increased availability of Delta supplies for urban, agricultural, and environmental purposes



6.1 NEW WATER SUPPLY VS. TOTAL WATER RECYCLING

Water recycling increases total water supply by providing a new source of water previously "lost" to the ocean, bays, estuaries, and evaporation ponds. However, in non-coastal area regions (and even in minor portions of coastal regions), recycling of current wastewater flows does not provide additional new water supply because the treated wastewater already is discharged into rivers, streams, and aquifers where, in many cases, downstream users (including the environment) may depend on this flow. It is important to distinguish the new water supply potential from total water recycling because of the value of new water to water supply reliability; however, the total recycling potential is still important to help meet eco-system and water quality goals of the Program.

The amount of new water supply generated from recycled water depends on the type of water body that receives the discharged wastewater. These include:

- Rivers and streams
- Saline water bodies, such as the Pacific Ocean or San Francisco Bay
- Recharge and evaporation ponds

When treated wastewater is discharged into rivers or streams, it contributes to baseline flows downstream of the discharge point. This water may not be available for recycling without diminishing streamflow and causing impacts that may need to be mitigated with additional flow from other sources. To use terminology consistent with the analysis of urban and agricultural water conservation in this program plan, **recycling of this stream discharge would represent a reduction in applied water and contribute to total recycling but would not constitute a reduction in irrecoverable losses**. (See also the discussion in Section 4.4, "Recoverable vs. Irrecoverable Losses.")

Many communities in the Sacramento and San Joaquin Valleys fall into the first category—rivers and streams. For example, the Sacramento metropolitan area currently discharges most of its treated wastewater into the Sacramento River, downstream of Sacramento. This water is then part of the flow available in the Delta today. Therefore, the expanded use of recycled water by Sacramento would not contribute to CALFED's water reliability objective. It will contribute to local water supply reliability, but potentially at the expense of others. Primarily, it may result in positive contributions to CALFED's water quality and ecosystem restoration objectives.

As wastewater flows increase with population growth, however, the incremental increase in flows may be available as a new water supply to be recycled for use in and around these inland areas. In other valley communities with less secure water supplies, recycling may be an important way of reducing the need to obtain new water supplies. The Water Code requires the owner of a wastewater treatment plant currently discharging treated wastewater into a natural water course to petition the SWRCB prior to ceasing the discharge and beginning reclamation for other beneficial uses. The SWRCB can permit such a change only if the petitioner establishes that the change will not injure any legal user of that water.

The majority of the state's wastewater flow is generated in coastal areas and discharged to the ocean and San Francisco Bay—for example, Los Angeles, San Diego, and San Francisco. The recapture and recycling of wastewater from those regions could generate a new water supply and further CALFED water supply reliability, water quality, and ecosystem restoration objectives.

Many cities in the Sacramento-San Joaquin River watershed, including the cities of Fresno and Bakersfield, discharge to recharge and evaporation ponds. The wastewater is "disposed of" by percolating into the local aquifer or evaporating from the pond surfaces. Recycling the portion that evaporates under this discharge method would benefit CALFED's water reliability and other objectives. Recycling the portion percolating into useable groundwater may or may not further these objectives.

For purposes of this analysis, the evaluation of water recycling potential is limited to the ability to further CALFED's water supply reliability objective through water recycling in the state's three primary coastal areas, the San Francisco Bay Area, the Central Coast, and southern California. The ability to further CALFED's water quality and ecosystem restoration objectives through water recycling has not been analyzed. Similarly, CALFED did not analyze the potential for Central Valley water recycling to help meet any of these objectives.

6.2 UNDERSTANDING WATER RECYCLING OPPORTUNITIES

Water recycling is gaining in recognition as a viable supply source. More and more urban water agencies are analyzing and implementing water recycling projects for several different reasons, depending on their local conditions. Current drivers include:

- Increasingly stringent waste discharge requirements, which affect the timing and quantity of wastewater discharge as well as the type and level of treatment required prior to discharge (an example may include the California Toxics Rule which, if implemented as proposed, could favor more recycling).
- A need to secure more reliable sources of water to meet growing populations as other new supply alternatives become increasingly more difficult to find or implement.
- A need to offset physical or legislated reductions in some existing surface water and groundwater sources (the result of actions taken under the state and federal ESAs).
- Increasing use of integrated water resource planning policies that dictate local supply development actions to address environmental issues and enhance water supply reliability through the diversification of the sources of water made available to the customers.
- California Water Code provisions that define use of potable water for nonpotable purposes as a waste and unreasonable use.

However, the potential for water recycling is currently limited by several impediments, the greatest of such is considerations of local cost-effectiveness. Inter-jurisdictional issues (e.g., rights to wastewater resources), public acceptance of recycled water, and complex permitting and regulatory compliance processes also discourage some local agencies.

One of the more daunting impediments to water recycling noted by urban water agencies has been cost, especially as it is affected by the quality of the source water. The CALFED Program approach to water use efficiency (see Section 2) is based on cost-effectiveness. The CALFED Program proposes to encourage local water suppliers to analyze all options for reducing the mismatch between supply and demand. Further, through the actions detailed in Section 2, CALFED agencies will help water suppliers implement appropriate options starting with the least expensive. This is anticipated to result in identification of feasible recycling

projects. CALFED acknowledges that there is limited information regarding the effect of source water quality on the costs of producing recycled water and is proposing to support necessary research (see Section 2.3.3). However, the Preferred Alternative does include actions targeting improvements in Delta water quality, the source for many potential water recycling projects. (For more information on source water quality improvement strategies, see the Water Quality Program Plan and the Revised Phase II Report.)

When considering local cost-effectiveness issues in the past, many agencies found several options to meet demands that were less expensive than water recycling. This statement is supported by findings of Reclamation's "Least-Cost CVP Yield Increase Plan" (DOI 1995). However, the Reclamation study did not attempt to evaluate the state-wide water supply reliability, water quality, and ecosystem benefits attributable to water recycling.

When water transfers are available as a source, they often provide the least expensive increment of additional water supply. Careful avoidance or mitigation of third-party impacts associated with water transfers can add to the cost, but transfers still may be a locally least-cost alternative. It should be noted that many transfers are conducted on a year-to-year basis, while water recycling provides a long-term supply. Difficulties in conveying water from a "seller" to a "buyer," especially if the transfer involves moving water across the Delta, also can reduce the reliability of transfers as an effective water supply option. Water recycling has the potential of enhancing the water transfer market by making additional water supplies available for transfer. The Water Code provides that a water right holder that has reduced its use of water as a result of recycling efforts is able to transfer the "saved" water, pursuant to applicable state and federal transfer laws.

For many agencies, water conservation measures also can be and have been implemented at a lower unit cost than recycling (see the urban conservation costs outlined in Section 5). Despite the extensive implementation of conservation measures that has occurred over the last decade, CALFED estimates that the potential for additional water conservation in the urban sector remains substantial—over 1.5 MAF. Even with full implementation of cost-effective water conservation measures, CALFED is predicting shortages in available water supply. Additional water recycling will be necessary to help reduce the mismatch between Bay-Delta water supplies and the current and projected beneficial uses dependent on its water.

For the reasons described above, recycling projects typically are evaluated by local water suppliers only in comparison to new supply development. The drivers listed previously, as well as shrinking opportunities for additional supply projects (with their associated impacts and the need to avoid or mitigate these impacts), are driving up the cost of new supply projects and making recycling more competitive. Nevertheless, several factors can continue to make new supply development more attractive to local water suppliers. In the past, many new supply projects have been planned, financed, and built by regional, state, or federal agencies, thus relieving local suppliers of the initial burdens of project development (although local agencies may pay back the costs over time through contractual arrangements). Like large storage projects, water recycling projects improve local water supply reliability and help meet CALFED Program objectives. Given the contribution of federal and state financial assistance to traditional water supply development, it may be appropriate for CALFED agencies to assume a planning and financing assistance role for recycling projects that help fulfill one or more CALFED objective.

Impediments to water recycling also make it difficult to project future levels of recycling. In particular, the inter-jurisdictional nature of water recycling tend to complicate projections. For example, one agency may secure raw water supplies for a region and deliver water to customers, while another agency may treat wastewater. Who is responsible for any recycled water? Water supply from a recycling project may need to move across agency boundaries in order to be delivered to customers. In addition, recycled water supplies in an area may be greater than demand in that area, resulting in recycled water that must be conveyed to another area if customers can be identified. CALFED could effectively address these institutional planning issues by providing technical and financial planning assistance for local planning efforts. CALFED's assurances program could include policies designed to encourage coordination of water recycling planning among water and wastewater agencies and ensure thorough examination of water recycling opportunities

throughout the state. For example, water suppliers could be required to prepare water recycling plans that evaluate potential sources of recycled water and coordinate plans with wastewater utilities.

Other impediments to water recycling include the public and market perceptions. Local project sponsors are regularly called on to defend the need for water recycling. Public concern exists regarding the safeguard of potable supplies and perceptions that recycled water could adversely affect the quality of current water supplies. In addition, some agricultural commodity buyers have disallowed the use of recycled water on certain crops, primarily because of concerns about the public's willingness to purchase food crops grown with recycled water. Overcoming these public perceptions is a necessary prerequisite to achieve the water recycling potential identified by CALFED. Public education is an important effort where CALFED can provide a leadership role. CALFED and the CALFED agencies also can improve the understanding and acceptance of water recycling through their individual and collective public outreach efforts. To foster a high degree of public confidence in water recycling, CALFED could provide funding to support current public education programs, and research and development efforts.

Impediments to the implementation of recycling projects may require vigorous efforts by CALFED agencies to make these projects feasible. The water recycling assistance programs of CALFED and the CALFED agencies will require much additional refinement and input from stakeholders to maximize program effectiveness. Only through additional innovation and assistance will California be able to realize a significant increase in the use of recycled water. These actions are discussed in detail in Section 2 of this document.

6.3 DETERMINING WATER RECYCLING POTENTIAL

Water recycling is and will continue to be an important element of California's water management strategy. To emphasize this importance, the Legislature, in 1991, adopted goals for the beneficial use of recycled water to include achieving 700 TAF per year of recycling by 2000 and 1 MAF per year by 2010 (Cal. Water Code Section 13577). Currently, about 485 TAF of urban water recycling occurs or is under construction in the state, with more projects being completed over the next several years (DWR 1997).

CALFED acknowledges that there is much uncertainty in developing water recycling estimates because of limited information about the effects of source water quality on the feasibility of projects and due to numerous other impediments previously discussed. With this in mind, CALFED has developed a broad range of water recycling potential, as presented in Section 6.5.1. Furthermore, CALFED's estimates were developed for a few primary purposes:

- To provide information for programmatic-level impact assessments;
- To gain a better understanding of the order-of-magnitude role recycling can have in statewide water management; and,
- To aid CALFED in designing the appropriate types and levels of incentive programs and assurance mechanisms.

The estimates are not targets, objectives, or goals. CALFED is not mandating that these or any other levels of water recycling be achieved. CALFED is, however, requiring that many actions (see Section 2) be undertaken by water suppliers that will result in the implementation of more reuse projects, but the actual savings that will result cannot be more accurately estimated without extensive studies that are beyond the scope of this Programmatic EIS/EIR.

6.3.1 REGIONAL WATER RECYCLING STUDIES

About 2.1 MAF of treated wastewater is discharged by urban California into the Pacific Ocean and San Francisco Bay (BARWRP 1997). As populations continue to increase, the amount of discharge also will rise, potentially reaching more than 3 MAF by 2020. As identified in Section 2 under "Water Recycling Approach," the CALFED Program seeks to identify and encourage regional water recycling opportunities that maximize reuse at minimum cost.

Currently, two regional water recycling studies are under way. The Bay Area Regional Water Recycling Program (BARWRP), previously referred to as the Central California Regional Water Recycling Project, is in its second phase of feasibility analysis. The Southern California Comprehensive Water Reclamation and Reuse Study (SCCWRRS) also is in its second phase of feasibility analysis to identify means of maximizing the use of recycled water in southern California. The goal of these studies is to identify regional recycling systems and develop potential capital projects through comprehensive planning processes.

Since both programs are still in their development stages, clear estimates of water recycling potential are not available. Also unknown is the overlap that may exist between the regional recycling potentials and the values portrayed in survey results and other data (supplied later in this section). These projects will provide valuable insight into the future potential of recycling when they are complete. But for now, use of regional data for this analysis is limited to the projections of future wastewater flow generated by the anticipated populations in 2020 and existing (or soon to be completed) levels of local recycling.

The Bay Area Regional Water Recycling Program

The BARWRP is a partnership of 17 Bay Area water and wastewater agencies, DWR, and Reclamation. This partnership is committed to maximizing the beneficial reuse of highly treated wastewater to provide a safe, reliable, and drought-proof new water supply. The product of the BARWRP efforts is a comprehensive regional water recycling master plan released in September 1999.

The master planning process has led to some important innovations and preliminary conclusions regarding recycled water. Some of these are discussed below:

Importance to CALFED. BARWRP has demonstrated that recycled water is an important component in the CALFED solution and can provide a significant, cost-effective new source of water for California. As stated in BARWRP correspondence to the CALFED process, recycled water is a potentially significant water supply option and would help CALFED achieve its objectives for water supply, water quality, and ecosystem quality.

Innovative Approaches. Innovative approaches to project implementation have been developed by BARWRP to significantly increase the feasibility of recycled water use. Such approaches include (1) crossing jurisdictional boundaries to serve customers from the least-cost recycled water source, (2) promoting the application of highest quality water to the highest uses through water exchanges, and (3) promoting trade of recycled water use for Bay Area discharge credits in a watershed approach for pollutants of concern.

BARWRP has developed new tools for identification and evaluation of recycled water projects. One tool, the Evaluation Decision Methodology, carefully scrutinizes cost and benefit allocation among agencies for

each alternative, sheds light on any disparities in cost and benefits, and helps highlight implementation strategies that should be taken to facilitate implementation.

Potential Recycled Water Demand. BARWRP has estimated that the wastewater treatment entities in the Bay Area will be generating recycled water volumes of approximately 670 TAF per year of water by 2010 and 730 TAF per year by 2040 (BARWRP 1999). For 2020, the estimate may be around 690 TAF annually (based on linear interpolation by CALFED staff). Current recycling levels are estimated by BARWRP at 20 TAF. This would leave approximately 670 TAF that ultimately could receive further treatment and be recycled by 2020.

BARWRP also has estimated a potential demand for recycled water of over 400 TAF per year by 2010. This demand includes satisfying existing demands for agriculture; irrigating parks, golf courses, and cemeteries; and industrial process requirements, as well as projected demands for environmental enhancement programs and major new residential and commercial developments.

BARWRP has analyzed the constraints that have inhibited implementation of this potentially important new water supply. These constraints include lack of a driving force for implementation, institutional barriers, and public perception issues. The chief constraint, however, has been lack of funding.

Recommended Recycling Levels. BARWRP, in its September 1999 Recycled Water Master Plan (BARWRP, 1999) recommends implementation of about 125 TAF of new water recycling by 2010 and 240 TAF by 2040. This represents over half the assessed demand of 400 TAF, but accounts for feasibility and acceptability issues that constrain satisfying the full demand.

The Southern California Regional Study

Although yet to determine a potential customer demand, the SCCWRRS has estimated that 2.47 MAF of treated wastewater would be available for recycling by 2010. By 2040, the estimate increases to 3.03 MAF annually. For 2020, the estimate may be around 2.6 MAF annually (based on linear interpolation by CALFED staff). Estimates of existing levels of water recycling are around 263 TAF annually. These estimates translate to roughly 2.3 MAF of additional treated wastewater that ultimately could receive further treatment and be recycled in 2020 (SCCWRRS, 1998). (It should be noted that there is disagreement among local water interests regarding existing levels of water recycling. However, for this document, CALFED is assuming the existing value is appropriate.)

Total Potential Treated Wastewater Flow Projected by the Regional Studies

Combined, the Bay Area and Southern California regional studies indicate about 3.3 MAF of wastewater being generated by 2020 (2.6 MAF from Southern California and 690 TAF from the Bay Area), not including any additional increment that would occur along the central coast (Monterey Bay area and Santa Barbara, although these are minor in comparison to the major population centers).

The approximately 500 TAF currently or soon to be recycled in California represents about 15% of the future treated wastewater stream. With additional projects in the feasibility and design phases, even more facilities are expected to be completed in the near future.

6.4 PROJECTED WATER RECYCLING UNDER THE NO ACTION ALTERNATIVE

To determine the effect of any incremental improvements in recycling as a result of a Bay-Delta solution, it is necessary to determine what level of recycling may occur in the future **without** a Bay-Delta solution. The CALFED Program No Action Alternative condition presented here is that estimate. Several assumptions used to develop this estimate are detailed in the following paragraphs.

6.4.1 SUPPLY AND DEMAND CONSTRAINTS ON POTENTIAL NO ACTION LEVELS

The No Action estimate presented later in this section indicates that a significant level of water will be recycled in 2020. Current levels of recycling (485 TAF) would increase to an estimated 1.0 MAF, representing an increase from about 15% up to 30% of the total wastewater flow (see discussion later). To make use of this recycled supply, however, there must be a demand. Customers must be available who can integrate recycled water with existing water sources, use it to replace existing sources, or use it as an entirely new source.

As shown in Table 6-1, customers of existing water recycling projects vary. However, the majority of current customers use the recycled water to meet plant ET requirements (either crop or landscape). Groundwater recharge represents the next most significant customer use. Use of recycled water by industry or for environmental uses has been limited to date but could represent significant potential, depending on the quality and timing of the available supply.

Table 6-1. Customers of Existing Water Recycling Projects

TYPE OF RECYCLING	1997 AMOUNT (TAF/YEAR)	PERCENT OF TOTAL
Agricultural irrigation	155	32
Landscape irrigation	82	17
Groundwater recharge	131	22
Industrial uses	34	7
Environmental uses	15	3
Sea water intrusion barrier	5	1
Other	63	13
Total	**485**	**100**

Source: DWR's California Water Plan Update, Bulletin 160-98, November, 1998

Timing of when recycled water is available to meet a customer's demand is among the most crucial limitations to the amount of recycling ultimately realized. For current agricultural and landscape irrigation uses, the demand is cyclical, peaking in summer but minimal in winter. The magnitude of variation in the cycle depends on such local conditions as climate and the type of plants (i.e., agricultural plants are harvested at the end of a seasonal but landscape plants may need some irrigation during winter, especially in Mediterranean climates like the South Coast). However, recycled water is generated on a relatively consistent basis, with very little seasonal fluctuation in the amount available. Thus, matching supply to demand can be limited by the type of demand. Strategies to overcome this include finding users whose demand is not seasonal, on a local or regional level, and storing recycled water for later use.

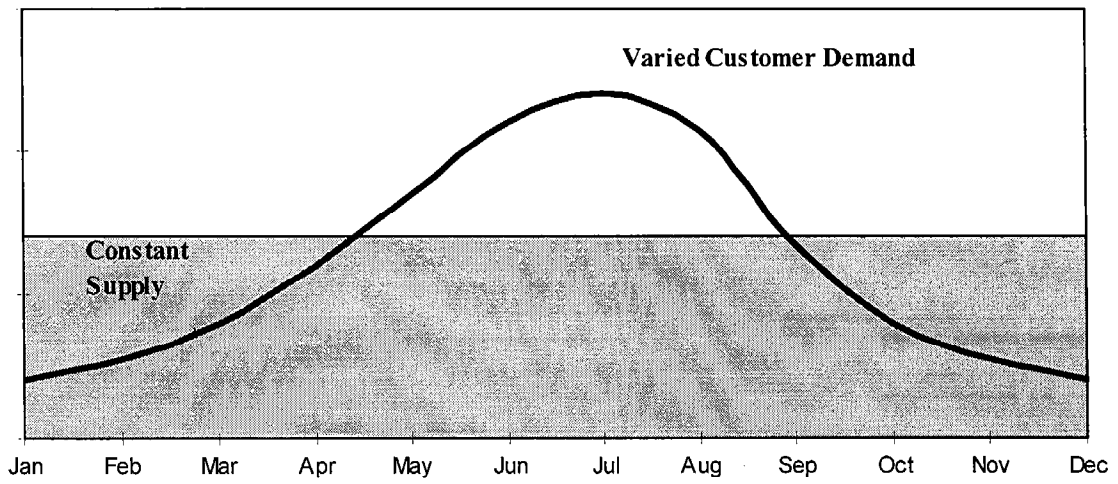


Figure 6-1. Supply/Demand Timing Difference
Note that only a portion of the water recycled can directly meet this customer's needs. The remainder must be stored or used by customers with a different demand pattern.

Figure 6-1 illustrates how recycling treated wastewater provides a relatively constant supply source, while some customer demands, such as agricultural irrigation, are more cyclical. This timing mismatch limits the amount of recycled water that can be used by seasonal customers without a method to store supplies during non-peak periods. The increased use of groundwater recharge to temporarily store recycled water or, as in some Southern California projects, to act as a barrier to sea water intrusion, provides added flexibility to manage the relatively constant supply and meet seasonal customer demands.

In addition, total water recycling levels are limited by the availability of customers in a particular geographic region. As a project looks for customers further away from the treatment plant, the cost of distribution can increase significantly. Lacking regional distribution facilities, agencies generating recycled water must look locally for customers, which can greatly limit the potential opportunities. Industrial and environmental uses can broaden the customer base.

Storing water in aquifers also can be limited in its ultimate applicability, depending on its purpose. If the water is being stored temporarily for later withdrawal and use, these limitations include:

- Recharge rates are limited by aquifer characteristics and recharge pond or injection well capacity.
- Locations for recharge ponds may be limited in heavily populated areas.
- Future additional storage potential in existing aquifers may be limited either as a result of storage already being used for recycled water or being used to temporarily store other surface sources.

If the water is being placed into aquifers as a barrier to sea water intrusion, as is occurring with some recycling projects, these limitations may not cause as much concern. When recycled water is used as a barrier to salty water, it is not primarily intended to be removed and reused. It can continue to "push" more fresh water toward the ocean, increasing the thickness of the barrier. However, there may be a practical limit to how far or how much of a barrier is necessary compared to the cost of providing a barrier. Thus, a practical consideration may constrain this use of recycled water.

Surface storage of recycled water has yet to occur at any significant level. A project originally proposed in San Diego would have been the first to treat a significant quantity of wastewater and recycle it into San Diego's drinking water reservoir. There, the recycled water would have blended with other untreated water and been conveyed to the water treatment facility and into the potable system. This project would have recycled approximately 15 TAF of indirect potable reuse. However, due to outcry from the public regarding the acceptability of this type of recycling caused the project to be canceled. Direct potable reuse currently is prohibited by state regulation. Other indirect potable reuse sites are under consideration in the BARWRP and SCCWRRS.

Use of other surface facilities to temporarily store recycled water will be limited by the capacity of the reservoirs and the distance from the recycling plant (if reservoir sites are distant or upslope from a treatment plant, pumping the recycled water to the reservoir is costly)

Lacking adequate storage or a distribution system that would allow a more diverse, widely distributed customer base to be included, the potential for water recycling may reach an upper limit of feasibility. For this analysis, the No Action Alternative levels discussed in the following subsection are assumed by CALFED to represent a practical upper limit (1.0 MAF of total water recycling in 2020).

6.4.2 AVAILABLE DATA FOR USE IN ESTIMATING THE NO ACTION ALTERNATIVE LEVEL

As previously discussed in Section 2.2.4 of this document, under "Water Recycling Approach," DWR, in partnership with the WateReuse Association of California, conducted a Survey of Water Recycling Potential in 1995-96 to help identify and quantify local agencies' plans for future water recycling (DWR 1996). The 230 survey respondents identified 1996 water recycling levels at over 450 TAF per year, and projected the potential for recycling at 1.49 MAF annually by 2020. The respondents listed projects by stages of planning: conceptual, feasibility study, preliminary design, final design, and under construction. "Base" conditions include any current recycling projects (projects already in operation) plus all projects that were under construction at the time of the survey. By the end of 1997, with the recent completion of a few more local recycling projects, the base was increased to 485 TAF (from 450 TAF). Greater production from existing projects as well as completion of other projects still under construction are expected to increase the base to around 615 TAF by 2020 (DWR 1997). Further refinement and incorporation of these survey data were completed for use by DWR in the "California Water Plan Update, Bulletin 160-98 Public Draft." This refinement resulted in the following assumptions for use in this analysis:

- The base condition for 2020 is 615 TAF of total water recycling (of which 485 TAF already has been implemented — leaving 130 TAF in the permitting or construction phase, or as completed build-out of existing facilities).

- Of this total, 468 TAF is considered new water supply.